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USSR WORK ON WALLACH REACTION

At the 22-23 April 1954 general meeting of the Department of Chemical Sciences, Academy of Sciences USSR, A. V. Kirsanov, Corresponding Member of the Academy of Sciences Ukrainian SSR, presented a report on the mechanism of the reaction of phosphorus pentachloride with the amides of carboxylic acids. According to Kirsanov, Wallach's reaction scheme, which had been published as early as 1887, was accepted until recently as valid for this intereaction. Wallach's scheme assumes the formation of amidochlorides of carboxylic acids, which split off hydrogen chloride with the formation of imidochlorides. The imidochlorides are in turn transformed into nitriles. According to Wallach's scheme, the imidochlorides can react with phosphorus oxychloride, yielding cholrides of imidochloride-N-phosphoric acids. Although some facts could not be explained on the basis of Wallach's reaction scheme, the scheme was not subjected to any criticism hitherto.

Experimental work has now shown that the reaction does not proceed according to Wallach's scheme, but in an entirely different manner. It was established in the course of this work that when phosphorus pentachloride reacts with amides of saturated carboxylic acids, the products of the reaction are not amidochlorides and phosphorus oxichloride, but the corresponding trichlorophosphazo compounds and hydrogen chloride.

As was mentioned in the discussion that followed the presentation of Wallach's paper, the new results are of importance not only because an error committed by Wallach has been corrected, but also because on the basis of the scheme proposed by Kirsanov it will be possible to synthesize a great number of substances that have practical applications.

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